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Applicant's have amended the Specification in accordance with the Examiner's suggestions to overcome the formal objections raised in paragraphs 2 and 3 of the Official Action. With regard to the objections raised in paragraph 2 of the Official Action, the written description has been amended so that the underdrain blocks are referred to by only one reference numeral in accordance with the Examiner's suggestion. By separate letter Applicants' have requested approval to amend the drawings so that only one reference numeral is used to refer to the underdrain blocks. Accordingly, Applicants respectfully request that the formal objections be withdrawn.

Applicants respectfully traverse the Examiner's rejections under 35 USC §§ 102 and 103 set forth in paragraphs 4 through 12 of the Official Action for the following reasons.

Applicant's invention as recited in Claim 1 is directed to an underdrain block for an underdrain system supporting a filter media bed in a liquid filtration system. The underdrain block includes an upper wall, side walls and a lower wall. The underdrain block includes at least one lateral member between the upper wall and the lower wall. The lateral member defines at least two chambers in the underdrain block. A plurality of orifices are formed in the upper wall of the underdrain block while a plurality of internal orifices are formed in the lateral member. The underdrain block is *jointless and extends substantially the length of the filter media bed*. Applicants' invention, as recited in Claim 1, is a significant improvement over previously known underdrain blocks. As explained in detail in the Specification, previously known underdrain blocks varied in length from two to four feet (See Specification, page 3, lines

27 to 34). Hence, it was necessary to join a number of previously known underdrain blocks end to end to form an underdrain lateral which extended the length of the filter media bed. This construction resulted in a number of joints formed along the length of the underdrain lateral. These joints lead to undesirable headloss. (See Specification, page 4, lines 10 to 26). Applicants' invention eliminates the joints formed between underdrain blocks positioned end to end and, hence, is a significant improvement over the prior art.

The reference (i.e. U.S. Patent No. 5,489,388) relied upon by the examiner to reject Claim 1 does not teach or suggest Applicants' invention as set forth in Claim 1. Specifically, the '388 patent expressly teaches away from the present invention by configuring the underdrain blocks in lengths of about four feet requiring a multitude of underdrain blocks positioned in end to end relationship to extend the length of the filter media bed. This is readily evident from Figure 1 of the '388 patent reproduced below which illustrates a number of underdrain blocks 16 positioned in end to end relationship to form underdrain lateral 12 extending the length of filter media bed 14.

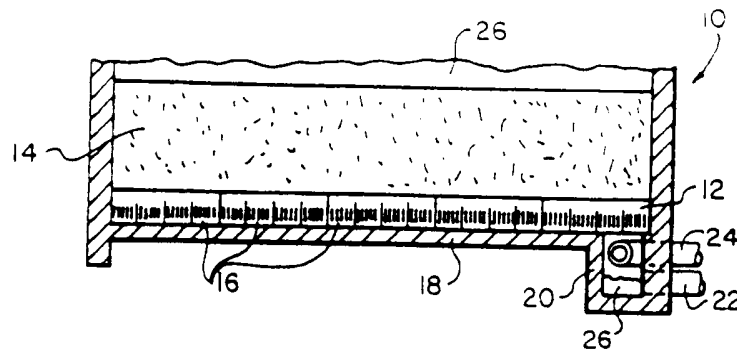


FIG. 1

Further, the remaining references of record fail to teach or suggest the aforementioned inherent deficiencies of the '388 patent. Accordingly, Applicants respectfully submit that Claim 1 patentably distinguishes over the prior art of record, taken alone or in combination.

Claims 2 through 7 depend from Claim 1 and, therefore, are allowable for similar reasons. Further, these dependent claims recite additional aspects of Applicants' invention which further patentably distinguish it from the prior art of record.

Applicants' invention, as set forth in Claim 18, is directed to an underdrain block for an underdrain system supporting a filter media in a liquid filtration system. The underdrain block includes an upper wall, side walls, and a lower wall. These walls define an interior of the

underdrain block. The underdrain block further includes three lateral members. Two of the lateral members are vertical and one is horizontal. The two vertical lateral members divide the interior of the underdrain block into three sections of approximately equal size. The horizontal member intersects the vertical lateral members and further divides the interior of the underdrain block into six chambers, i.e. three upper chambers and three lower chambers. The three upper chambers are of approximately equal size. The three lower chambers are of approximately equal size. Accordingly, Applicants are able to achieve the six chamber design with only three lateral members. This construction significantly reduces the complexity of the underdrain block design which in turn reduces the overall cost of manufacture. Further, Applicants' underdrain block, as recited in Claim 18, has a greater structural strength than underdrain blocks employing inclined lateral members in the interior thereof.

In rejecting Claim 18, the Examiner has relied upon the combination of the '388 patent and U.S. Patent No. 5,269,920 ("920 patent"). The '388 patent and '920 patent, taken alone or in combination, do not teach or suggest Applicants' invention, as set forth in Claim 18. The Examiner has conceded that the '388 patent fails to teach or suggest an underdrain block having three lateral members which form six chambers in the underdrain block three of which are upper chambers of approximately equal size and three of which are lower chambers of approximately equal size. In an attempt to supply this admitted deficiency of the '388 patent, the Examiner has relied upon the '920 patent. However, the '920 patent fails to teach two vertical lateral members which form three chambers of approximately equal size. Further, the '920 patent requires *five*

*lateral members* to form six chambers in the underdrain. Moreover, in the construction of the underdrain block of the '920 patent only two of the upper chambers are of approximately equal size. Accordingly, even if combined, the '920 patent and '388 patent fail to teach Applicants' invention.

In addition, the proposed combination of the '388 patent and the '920 patent is unobvious. Specifically, the '388 patent is directed to solving the problem of "drag water return". To achieve this end, the '388 patent discloses specific constructions for the interior of an underdrain block. One of ordinary skill in the art would not modify the underdrain block construction of the '388 patent as proposed by the Examiner in view of the principal objective thereof, i.e. to overcome "drag water return".

Claim 19 depends from Claim 18 and, therefore, is allowable for similar reasons. Further, Claim 19 recites additional aspects of Applicants' invention which further patentably define it over the prior art of record.

Claim 28 is directed to an underdrain block for an underdrain system supporting a filter media bed in a liquid filtration system. The underdrain block includes a plurality of walls integrally connected and at least one chamber within the underdrain block being formed by the plurality of walls. The underdrain block is *jointless and extends at least five feet*. As explained in the Specification, previously known underdrain blocks are from two to four feet in length. The prior art cited by the Examiner including the '388 patent does not teach or suggest a jointless underdrain block which extends at least five feet. Rather, the '388 patent teaches a four

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foot underdrain block. (See Col. 5, lines 25-26) Hence, it would take at least two underdrain blocks of the '388 patent positioned in an end to end relationship to achieve the at least five feet recitation of independent Claim 28. However, such a construction would have a joint and the undesirable headloss attendant thereto. It is abundantly clear that the prior art of record does not appreciate the disadvantages attendant joints in underdrain blocks positioned in an end to end relationship. Hence, the prior art of record fails to teach or suggest modifying the conventional lengths of underdrain blocks to reduce and/or eliminate headloss caused by joints. Applicants respectfully submit that Claim 28 patentably defines over the prior art of record.

Accompanying the subject Amendment is a Revocation and Substitute Power of Attorney authorizing the undersigned to prosecute the subject patent application before the United States Patent and Trademark Office.

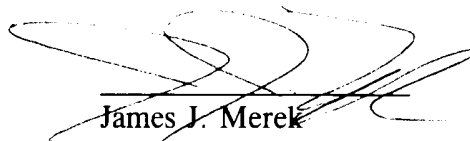
In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance. Applicants respectfully request that the application be passed to issuance without delay. It is believed that no additional fees are due at this time, however should this determination be incorrect then please charge any deficiencies to our Deposit Account No. 13-2759 and notify the undersigned in due course. Should the Examiner have any

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questions or wish to discuss this matter further, please contact the undersigned at the number listed below.

Respectfully Submitted,

DATE: 8/17/99

  
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